



# Lower Colorado River Multi-Species Conservation Program

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*Balancing Resource Use and Conservation*

## Big Bend Conservation Area

## 2018 Annual Report



**September 2019**

Work conducted under LCR MSCP Work Task E25

# Lower Colorado River Multi-Species Conservation Program Steering Committee Members

## **Federal Participant Group**

Bureau of Reclamation  
U.S. Fish and Wildlife Service  
National Park Service  
Bureau of Land Management  
Bureau of Indian Affairs  
Western Area Power Administration

## **Arizona Participant Group**

Arizona Department of Water Resources  
Arizona Electric Power Cooperative, Inc.  
Arizona Game and Fish Department  
Arizona Power Authority  
Central Arizona Water Conservation District  
Cibola Valley Irrigation and Drainage District  
City of Bullhead City  
City of Lake Havasu City  
City of Mesa  
City of Somerton  
City of Yuma  
Electrical District No. 3, Pinal County, Arizona  
Golden Shores Water Conservation District  
Mohave County Water Authority  
Mohave Valley Irrigation and Drainage District  
Mohave Water Conservation District  
North Gila Valley Irrigation and Drainage District  
Town of Fredonia  
Town of Thatcher  
Town of Wickenburg  
Salt River Project Agricultural Improvement and Power District  
Unit "B" Irrigation and Drainage District  
Wellton-Mohawk Irrigation and Drainage District  
Yuma County Water Users' Association  
Yuma Irrigation District  
Yuma Mesa Irrigation and Drainage District

## **Other Interested Parties Participant Group**

QuadState Local Governments Authority  
Desert Wildlife Unlimited

## **California Participant Group**

California Department of Fish and Wildlife  
City of Needles  
Coachella Valley Water District  
Colorado River Board of California  
Bard Water District  
Imperial Irrigation District  
Los Angeles Department of Water and Power  
Palo Verde Irrigation District  
San Diego County Water Authority  
Southern California Edison Company  
Southern California Public Power Authority  
The Metropolitan Water District of Southern California

## **Nevada Participant Group**

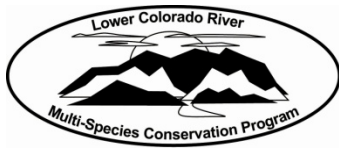
Colorado River Commission of Nevada  
Nevada Department of Wildlife  
Southern Nevada Water Authority  
Colorado River Commission Power Users  
Basic Water Company

## **Native American Participant Group**

Hualapai Tribe  
Colorado River Indian Tribes  
Chemehuevi Indian Tribe

## **Conservation Participant Group**

Ducks Unlimited  
Lower Colorado River RC&D Area, Inc.  
The Nature Conservancy



# **Lower Colorado River Multi-Species Conservation Program**

## **Big Bend Conservation Area**

## **2018 Annual Report**

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Multi-Species Conservation Program  
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**September 2019**

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# ACRONYMS AND ABBREVIATIONS

BBCA	Big Bend Conservation Area
FY	fiscal year
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
lidar	light detection and ranging
pH	the acidity or basicity (alkalinity) of an aqueous solution
PIT	passive integrated transponder
Reclamation	Bureau of Reclamation
SNWA	Southern Nevada Water Authority

## Symbols

°C	degrees Celsius
μS/cm	microsiemens per centimeter
mg/L	milligrams per liter

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## 1.0 INTRODUCTION

The purpose of this annual report is to summarize all activities that have occurred at the Big Bend Conservation Area (BBCA) from October 1, 2017, through September 30, 2018, which is Federal fiscal year (FY) 2018. Water usage is presented for the calendar year, January 1, through December 31, 2018, consistent with the Colorado River Accounting and Water Use Report: Arizona, California, and Nevada, Calendar Year 2018 (Bureau of Reclamation [Reclamation] 2019).

### 1.1 Background

Reclamation, the State of Nevada, and the Southern Nevada Water Authority (SNWA) worked in partnership since 2005 to secure the Boy Scout Camp property and protect the adjacent backwater for inclusion into the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). The Boy Scout Camp property purchased by the SNWA (15 acres of upland honey mesquite [*Prosopis glandulosa*] habitat) and the adjacent 15 acres of backwater within Reach 3 owned by the State of Nevada are collectively known as the BBCA.

The LCR MSCP has a conservation measure requiring the creation of 85 acres of flannemouth sucker (*Catostomus latipinnis*) habitat within Reach 3 (Davis Dam to Parker Dam). In addition, the program also requires the creation of 360 acres of backwater for both razorback suckers (*Xyrauchen texanus*) and bonytail (*Gila elegans*).

Flannemouth suckers were reintroduced into the Colorado River below Davis Dam by the Arizona Game and Fish Department in 1976 by transfer of fish captured at the confluence of the Colorado and Paria Rivers at Lee's Ferry, Arizona. This stock has persisted for three decades and now represents the only known population of this native species in the Colorado River downstream from the Grand Canyon.

## 2.0 CONSERVATION AREA SITE INFORMATION

### 2.1 Purpose

Backwater habitat maintained within the BBCA will be managed for flannemouth suckers, razorback suckers, and bonytail. The adjacent marsh habitat will be maintained for western least bitterns (*Ixobrychus exilis hesperis*) and Yuma clapper rails (*Rallus longirostris yumanensis* [also known as Ridgway's rail = *R. obsoletus yumanensis*]). The upland honey mesquite habitat will be maintained to provide foraging habitat for additional LCR MSCP covered species and to provide a venue for low-impact recreation.



## 2.2 Location

The BBCA is located in Reach 3 in Laughlin, Nevada. It is within the historic floodplain of the lower Colorado River at River Mile 266 (figure 1).

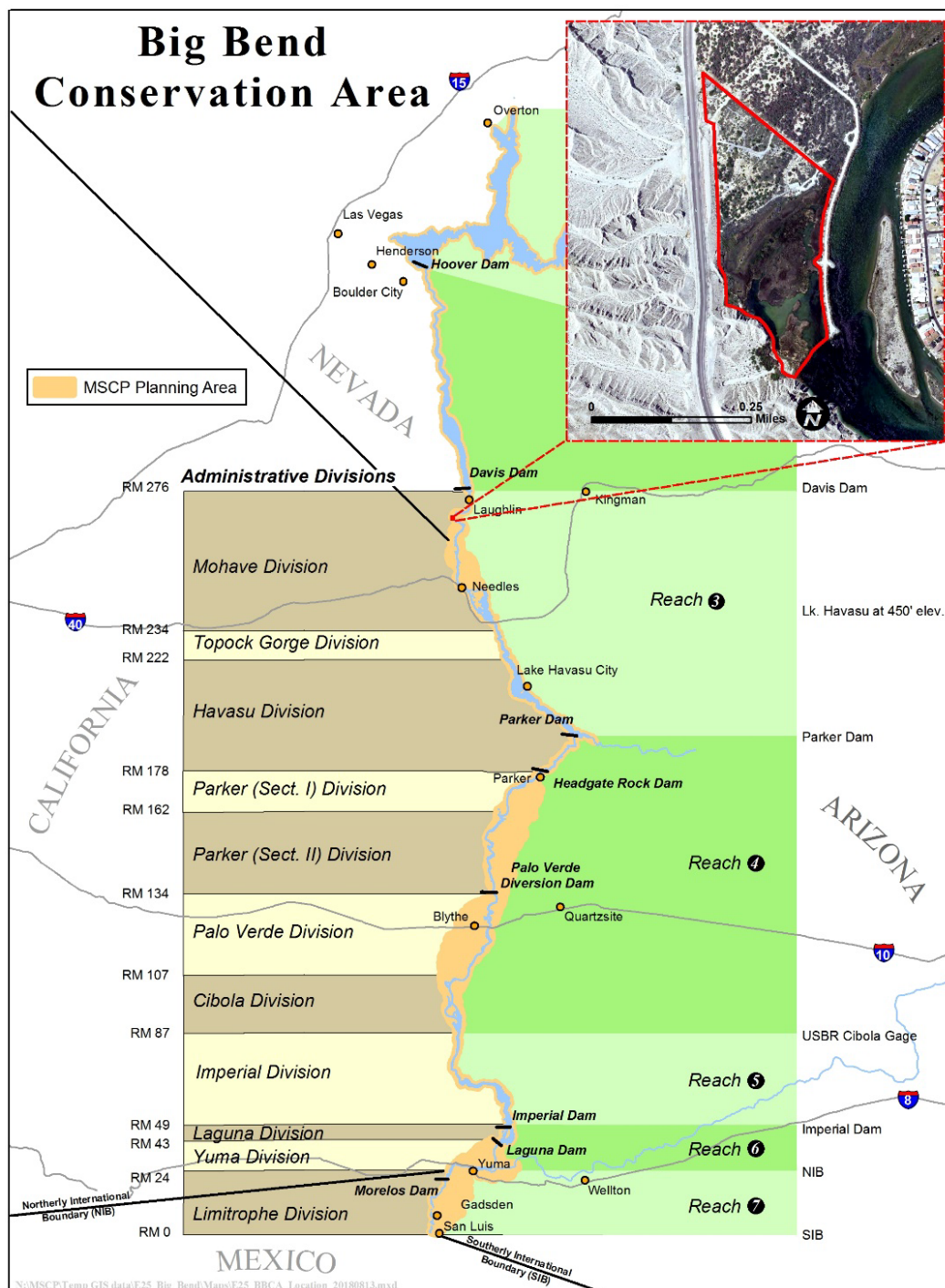


Figure 1.—LCR MSCP planning area with the BBCA (inset).

## **2.3 Landownership**

The 15 acres of backwater habitat is owned by the State of Nevada, and the 15 acres of upland honey mesquite is owned by the SNWA.

## **2.4 Water**

The SNWA has an entitlement to Colorado River water for use on 15 acres of honey mesquite upland for up to 10 acre-feet per year. However, the site no longer has the water entitlement because the restored honey mesquite plantings have been established and are utilizing groundwater.

## **2.5 Agreements**

A Land Use Agreement was signed in 2008 by Reclamation, the SNWA, and the State of Nevada to secure land and water for the BBCA for the remainder of the 50-year LCR MSCP. The agreement outlines the rights and responsibilities of each partner in the project's development and maintenance.

## **2.6 Public Use**

The upland area consists of a low-impact recreational hiking trail and a wildlife viewing area. Interpretive signage is located at the gravel parking lot for visitors. Although the LCR MSCP does not have substantial involvement in the interpretive area, cooperation is necessary to ensure all activities conducted in the upland area are consistent with the program's goals and objectives.

The backwater area has been designated a no-wake zone. Coordination between the Nevada Department of Wildlife and the Nevada Wildlife Commission resulted in the installation of two buoys at the entrance to the backwater to designate the wakeless area. Installation of the buoys occurred after the Wildlife Commission in 2010 approved the BBCA backwater as a no-wake zone (Colorado River Regulation 382, Legislative Council Bureau File No. R004-10). The buoys restrict access to the backwater to only wake-less speed in order to decrease disturbance to the wildlife.

## **2.7 Law Enforcement**

The SNWA is responsible for law enforcement at the BBCA. A LCR MSCP Conservation Area Specific Fire Management & Law Enforcement Strategy was

finalized for the BBCA (LCR MSCP 2010). Reclamation continues to work with the SNWA and local officials to ensure law enforcement activities do not conflict with the LCR MSCP Habitat Conservation Plan.

## **2.8 Wildfire Management**

Federal, State, and local fire agencies, either by existing management agreements or mutual aid agreements, provide wildland fire suppression, incident dispatch, fire investigation, fuels reduction, and potential fire restrictions. The full range of suppression strategies are available to managers provided that selected options do not compromise firefighter or public safety, are cost effective, consider the benefits of suppression and the values to be protected, and are consistent with resource objectives (LCR MSCP 2010).

## **3.0 HABITAT DEVELOPMENT AND MANAGEMENT**

Figure 2 shows the established land cover types that are being managed for LCR MSCP covered species.

### **3.1 Planting**

There were no new plantings at the BBCA during FY18. The backwater is maintained by the daily rise and fall of the Colorado River's operation.

### **3.2 Irrigation**

No irrigation was conducted at the BBCA during FY18, as all the honey mesquite plantings have been established and utilize groundwater.

### **3.3 Site Maintenance**

No maintenance activities for the upland honey mesquite area were conducted at the BBCA during FY18. Future maintenance activities may consist of invasive vegetation removal and road repair.



Figure 2.—Managed acreage at the BBCA through FY18.



An annual backwater light detection and ranging (lidar) survey was conducted to monitor sedimentation and water depths within the BBCA. These data are being collected to compare elevations for LCR MSCP management to determine future maintenance needs of the backwater.

## **4.0 Monitoring**

### **4.1 Backwater Monitoring**

Routine fisheries monitoring of the BBCA was conducted monthly throughout FY18. Multiple sampling methods and gear types were used to contact various life stages of native fish species. Active monitoring was conducted using trammel nets and manual larval sampling, and passive monitoring was completed using remote passive integrated transponder (PIT) scanning. Monitoring efforts targeted areas where native fishes had been previously contacted; however, sampling locations were occasionally shifted to areas where daily fluctuations in river stage permitted access. Water quality was also recorded during each active monitoring trip.

#### **4.1.1 Native Fishes**

Fisheries monitoring activities were conducted monthly throughout the year. Netting activities were completed in the winter and spring months, and remote PIT scanning was conducted continuously. Routine monitoring resulted in netting captures of 13 razorback suckers and 1 bonytail. The captured fishes came from three FY18 stockings: one on March 22 at Laughlin Lagoon and two on April 5 at Laughlin Lagoon and the Big Bend boat ramp. Remote PIT scanning resulted in the contact of 80 razorback suckers and 10 bonytail. All bonytail contacted via netting and scanning were from the March 22 stocking. Razorback sucker and flannelmouth sucker larvae were both present during spring surveys. Larval capture rates were lower than those in FY17 but similar to previous years.

#### **4.1.2 Water Quality**

Water quality was recorded at a single location in the backwater during each active fish monitoring trip. A multi-parameter probe was used to record water temperature in degrees Celsius (°C), dissolved oxygen in milligrams per liter (mg/L), specific conductivity in microsiemens per centimeter (µS/cm), and pH. Due to its hydrological connection to the river, this backwater maintained excellent water quality throughout the year. Water temperature, dissolved oxygen, specific conductivity, and pH all remained within the known thresholds for native fishes throughout FY18. Water quality data are presented on figures 3–6.

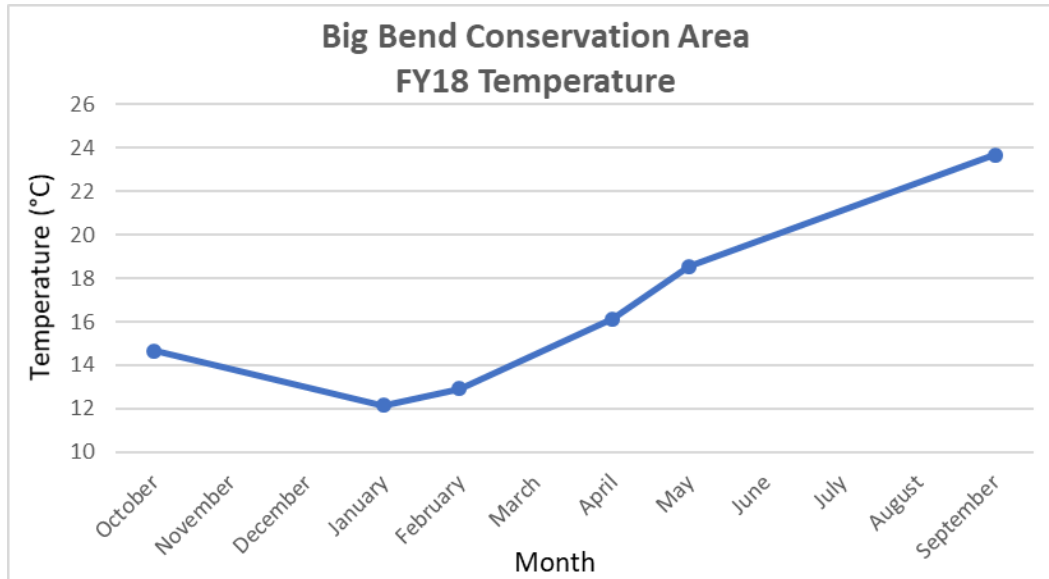


Figure 3.—FY18 water temperature at the BBCA.

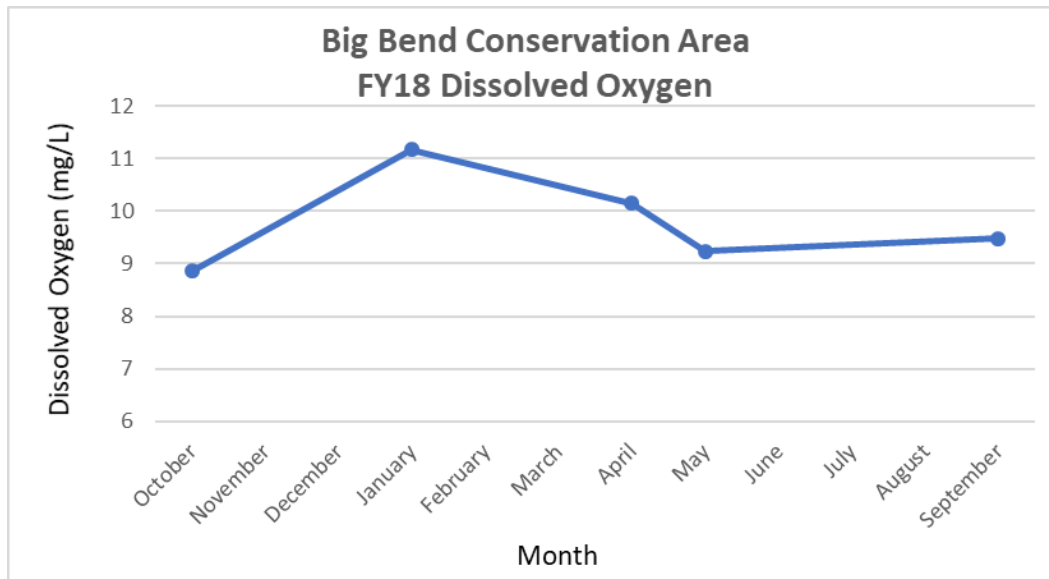
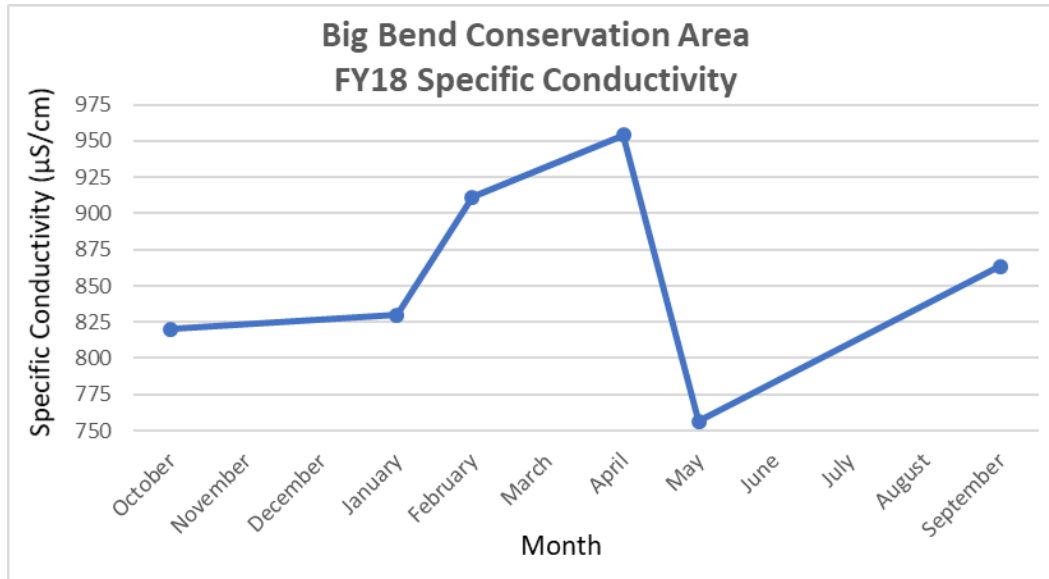
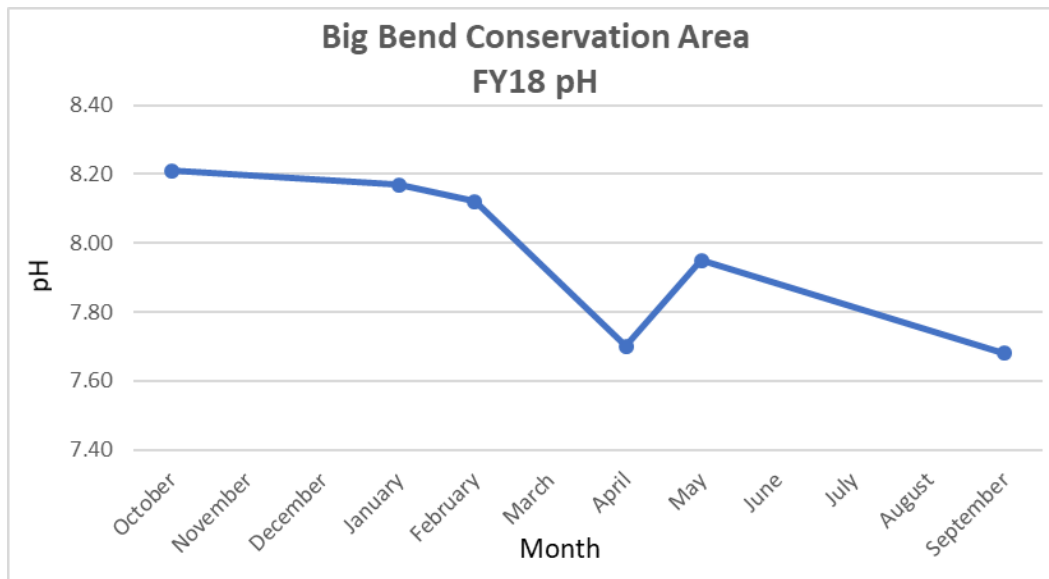


Figure 4.—FY18 dissolved oxygen at the BBCA.

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**Figure 5.—FY18 specific conductivity at the BBCA.**



**Figure 6.—FY18 pH at the BBCA.**

## 4.2 Avian Monitoring

Avian monitoring at the BBCA in FY18 included surveys for marsh birds.

### 4.2.1 Marsh Bird Surveys

Presence surveys for California black rails (*Laterallus jamaicensis coturniculus*), western least bitterns, Virginia rails (*Rallus limicola*), and Yuma clapper rails were conducted in marsh habitat at the BBCA in three survey sessions during March and April. One California black rail was detected on March 15, 2018. This was the first time this species has been detected at the BBCA. No other LCR MSCP covered species were detected (Kahl, Jr. 2018).

## 5.0 HABITAT CREATION CONSERVATION MEASURE ACCOMPLISHMENT

Vegetation data were collected in FY15 using lidar. Lidar measures the vegetation structure and provides the ability to identify structural diversity and successional growth stages. BBCA vegetation will be evaluated on a periodic basis using lidar to ensure the habitat is meeting species' requirements. A procedure to analyze and provide vegetation structure metrics will be developed, and the results will be presented in future reports.

Preliminary analyses suggest that airborne lidar may not provide the necessary detail for evaluating marsh habitat. Alternative techniques will be explored.

The Final Habitat Creation Conservation Measure Accomplishment Tracking Process was finalized in October 2011 (LCR MSCP 2011). All areas within the BBCA were designed to benefit covered species at the landscape level. The BBCA was brought into the LCR MSCP to benefit flannelmouth suckers (FLSU1), razorback suckers (RASU2), and bonytail (BONY2) (table 1), including other covered species.

Table 1.—Species-specific habitat creation conservation measure creditable total acres for 2018

Species-specific habitat creation conservation measure	FLSU1	RASU2	BONY2
Creditable acres in 2018	0	0	0
Total, including previous years	15	15	15



## **6.0 ADAPTIVE MANAGEMENT RECOMMENDATIONS**

Adaptive management relies on the initial receipt of new information, the analysis of that information, and the incorporation of the new information into the design and/or direction of future project work (LCR MSCP 2007). The Adaptive Management Program's role is to ensure habitat creation sites are biologically effective and fulfill the conservation measures outlined in the Habitat Conservation Plan for 27 covered species and to determine if they potentially benefit 5 evaluation species. Post-development monitoring and species research results will be used to adaptively manage habitat creation sites after initial implementation. Once monitoring data are collected over a few years, and then analyzed for the BBCA, recommendations may be made through the adaptive management process for site improvements in the future.

There are no adaptive management recommendations for the BBCA at this time.

## LITERATURE CITED

- Bureau of Reclamation. 2019. Colorado River Accounting and Water Use Report: Arizona, California, and Nevada, Calendar Year 2018. Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.
- Kahl, Jr., J. 2018. Marsh Bird Surveys at Conservation Areas, 2018 Annual Report. Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada.
- LCR MSCP (see Lower Colorado River Multi-Species Conservation Program).
- Lower Colorado River Multi-Species Conservation Program (LCR MSCP). 2007. Final Science Strategy. Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada.
- \_\_\_\_\_. 2010. Lower Colorado River Multi-Species Conservation Program Fire Management & Law Enforcement Strategy. Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada.
- \_\_\_\_\_. 2011. Final Habitat Creation Conservation Measure Accomplishment Tracking Process. Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada. October 26.